

The MIKS (Member Integrated Knowledge System) Model: A Visualization of the Individual Organizational Member's Role when a Knowledge Management System is Utilized in the Learning Organization

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Relating knowledge management (KM) case studies in various organizational contexts to existing theoretical constructs of learning organizations, a new model, the MIKS (Member Integrated Knowledge System) Model is proposed to include the role of the individual in the process. Their degree of motivation as well as communication and learning processes generate an understanding of why individuals engage in the knowledge sharing and knowledge generation desired to promote the advancement of the learning organization.

Keywords: Knowledge Management, Motivation, Learning Organization

What is the rationale behind using the individual to connect the theoretical constructs of knowledge management and the learning organization? The learning organization calls for the creation of a system that promotes the sharing of knowledge, and learning, at the individual, organizational and system levels—through knowledge generation from a systems viewpoint and the creation and explicit communication of mental models that derive from this process (Senge, 1990). Knowledge management can play an integral role in this systemic learning process, if organizations move beyond simplistic information database concepts to build comprehensive knowledge management systems that can enable individuals to share complex information.

In a 2004 survey of learning executives, Accenture Learning identified seven traits of High-Performance Learning Organizations. One of these traits was the “integration of learning with other human performance systems and functions, such as knowledge management, performance support and talent management” (Sussman, 2005, p. 39). Mai (1998) directed, “In order that we might make organizational learning happen more readily and more regularly in our companies, we need to focus more on the tasks involved in gaining and implementing organizational knowledge—the product of organizational learning” (p. 22).

“While the growth and sharing of knowledge is recognized as one of the most important elements in becoming a ‘learning organization’ what has been missing, according to many researchers and practitioners in the field, is the development of technological solutions that build on a theoretical framework for describing how people learn and perform in an organization” (Plass & Salisbury, 2001).

The key lies in considering both elements of the equation—people and technology. According to Chan and Garrick (2003), one of the primary concerns for knowledge management is the application of information technology from a technical process perspective that does not include a consideration for the needs of the people engaging with it. This paper will synthesize the findings of various KM case studies to generate a new model of knowledge management that may meet the challenges of learning organizations by focusing on the many factors that affect the individual member as they interact with the technology to acquire, synthesize, apply and generate knowledge.

The MIKS model builds upon the work of Baiyin, Watkins and Marsick (2004) and Crossan, Lane and White (1999), whose Dimensions of the Learning Organization Questionnaire (DLOQ) and 4I Model, respectively, identify three levels of organizational learning—individual, group and organizational. The variables impacting knowledge sharing, knowledge acquisition, knowledge utilization, and knowledge generation at the first level—individual, as it relates to engagement with a system of knowledge management is the focus of this proposed model. Additionally, communication theories related to computer-mediated communication are considered as the basis of a theoretical framework.

Considering the Human Component of Knowledge Management Systems in Learning Organizations

A literature review of case studies that utilize knowledge management systems to foster the development of learning organizations reveals human characteristics that impact the success or failure of individual interactions with the knowledge management system. The characteristics that commonly emerged in the case studies can be categorized and related to theories of adult learning, motivation and communication. The deficit in the literature is that these connections are not made. These individual characteristics are viewed as problems to be overcome, but a substantive link among them is not developed.

By generating a systemic view of the individual that includes their degree of motivation, individual learning styles and communication processes, managers may be able to develop a deeper understanding of why the person does or does not engage in the knowledge sharing and knowledge generation process desired to promote the advancement of the learning organization. The MIKS (Member Integrated Knowledge System) Model attempts to construct a link between the practices of knowledge management and learning organization communication by focusing on the organizational member as a bridge between the two.

At the organizational level, this deeper understanding of the individual can help HRD managers design effective training programs, identify appropriate extrinsic rewards, and encourage continuous learning. By bringing the human perspective to a technology-driven practice, HRD professionals can spur the development of knowledge management systems that foster full engagement across the organization and create cohesion across perceived and actual organizational divides. The “four walls” of today’s organization are built around members who are physically disconnected in time and space because of multiple national locations, global networks, and telecommuting practices, as well as perceptive chasms that exist among working divisions, sub-cultures and political divides. The technological capabilities that knowledge management brings to the table can help build connections, but it is the role, and the responsibility, of the HRD professional to recognize the limitations and capitalize on the capabilities of the human element in that connection.

An Overview of the Learning Organization and Knowledge Management

A learning organization is developed as a system of individuals who shift their traditional worldviews toward a systems perspective and, in the process, build a sense of interconnectedness that leads the group to the realization that the whole is greater than the sum of its parts. It demands that organizational members let go of deeply-held beliefs about organizational culture, such as individualism, defensiveness, competition, and compromise and shift to a view of organizational culture that values collective intelligence, openness, and a willingness to share knowledge, make mistakes and show weaknesses in working with others. Members are asked to stop reacting to problems; instead they are encouraged to creatively anticipate organizational needs by generating collective knowledge (Eisenberg & Goodall, 2004; Senge, Kleiner, Roberts, Ross & Smith, 1994; Zalaback, 2002). This systemic change is driven by organizational leaders, but requires a shift to an organization-wide collaborative and constructivist learning approach to managing the daily business.

Garavan, Morley, Gunnigle and McGuire (2002) considered how human resource development contributes to organizational learning by focusing on two themes: first, developing a “continuous cycle of learning to capitalize fully on organizational capabilities” and second, “that a learning organization perspective enables organizations to be more agile and responsive to their external environments” (p. 66). Ultimately, recognition of these goals depends on organizational knowledge, or perhaps a step further—organizational wisdom. According to Kessler (2006) organizational wisdom moves beyond knowledge management. He says, “wisdom represents the synthesis of knowledge-based potential with higher order visioning and practical implementation” (p. 296). “Success does not go necessarily to the firms that have the best information systems or know the most but to the firms that can make the best use of what they know” (Kessler, 2006, p. 297).

Knowledge is an asset—at the individual and organizational levels. Individually, knowledge promotes personal growth, creates personal power, and can be used as a strategic tool; organizationally, knowledge is an asset if it is translated to behavior by an individual for organizational betterment, if that knowledge is shared with and utilized by other members of the organization, or if it is saved for future members to learn from (Easterby-Smith, 2005).

Knowledge is a key component of a successful learning organization—if the organization develops the systems necessary to fully capitalize on the learning capabilities not only of individual members, but of the whole. It would seem logical that knowledge management would play an integral role in this process. According to Downing (2004), “KM tools refer broadly to information and communication technologies that gather, index and structure the “corporate memory” or an organization’s employees” (p.167). From an IT perspective, knowledge management systems are designed to store explicit knowledge—formal, structured as well as informal, unstructured data—so that

individuals can retrieve that information when necessary (Collins, 2001; Paul, 2006). A broader definition of KM considers the management of the organization's intellectual capital in order to maximize the benefits of collective wisdom (Kessler, 2006).

However, these definitions do not give enough weight the human capital in the KM system—the impact of the people who must share their knowledge and learn from others to create organizational wisdom. Some conclude that technological mediation limits individual socialization as well as the development of a culture and, especially, the building of trust—critical criteria for knowledge sharing (Arthur & Kim, 2005; Paul, 2006). Another common critique of knowledge management is the question of the ability to transfer tacit knowledge—whether or not it can be codified and therefore communicated to others (Beitler, 2005; Chan & Garrick, 2003). Some believe tacit knowledge can be codified, but it usually requires face-to-face interaction, a high degree of trust, and time in order to be shared (Arthur & Kim, 2005; Paul, 2006; Pretorius & Steyn, 2001). For the learning organization to thrive, the goal of knowledge sharing and knowledge management must move beyond the goal of simple transfer and evolve to include the experiential and critically cognitive components of knowledge construction—a highly individualistic process.

Constructivist learning is learner-centered and rooted in the process of critically reflective practice (Pratt & Nesbitt, 2000). For a knowledge management system to be an effective tool for knowledge construction, three variables must be addressed—engagement, synthesis/application, and sharing. First, why does the person choose to engage or ignore the knowledge management system? Second, how do they synthesize and apply that information once retrieved from the system, and third, if higher order thinking is encouraged and critical reflective practices emerge, how can that new knowledge be shared with others in the organization? The MIKS Model, while it does include the groundwork for the third process, knowledge sharing, as well as other organizational variables that may affect the process, it primarily focuses on the humanistic components that impact the first two variables—acquiring and synthesizing/applying information and knowledge.

The MIKS Model: The Member (M) Integrated (I) Knowledge (K) System (S)

The MIKS Model focuses on key elements within organizational members and their interaction with technological systems that emerge as impacting forces when knowledge management is considered to play a role in developing the knowledge construction framework desired for a learning organization. The Model addresses how, through human interaction, the technology can move beyond storing and retrieving data and information to exploring how explicit, and perhaps tacit, knowledge can be shared through a mediated exchange. For learning organizations, the ultimate goal would be to promote ongoing knowledge creation and dissemination through this process.

Easterby-Smith and Lyles (2005) emphasize the importance of sharing and synthesis of tacit knowledge for an organization to create a spiral of learning. This learning must encompass both cognitive and behavioral elements for it to become an individual and an organizational asset. The management of this individual and organizational knowledge is essential for the dynamic organizational system to survive and thrive. The member must first internalize knowledge in order to codify it. This individual knowledge becomes an organizational asset once it is either applied or shared; in the MIKS Model, this sharing occurs through technological mediation, rather than face-to-face exchange.

Many factors resting within the organizational member might impact their ability to share and utilize knowledge through a mediated channel. Two predominant categories emerged in the literature review of knowledge management case studies: degree of motivation and individual learning processes. A review of additional literature in knowledge management and mediate communication provided a third relevant category—communication processes.

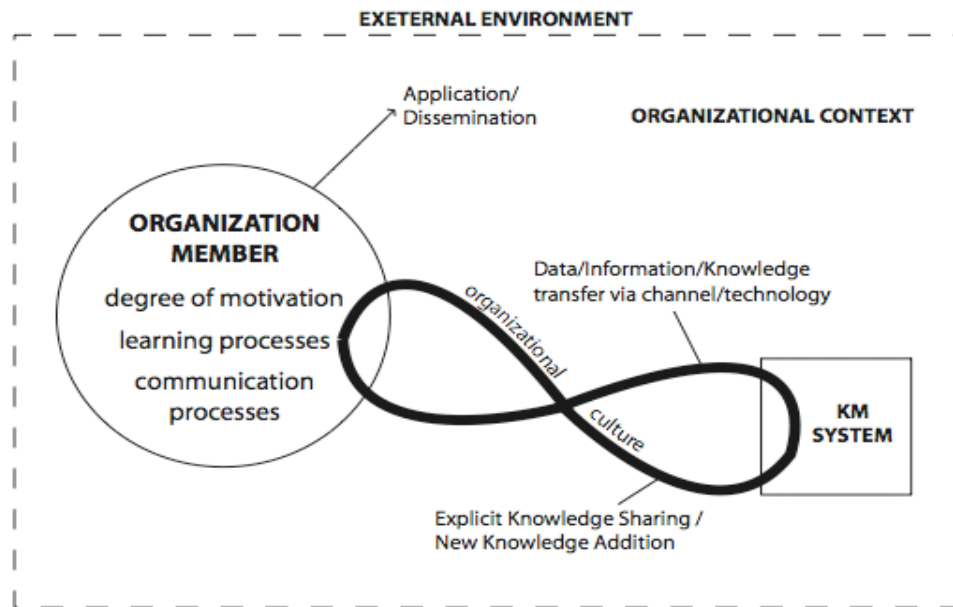


Figure 1. The MIKS Model: The Member (M) Integrated (I) Knowledge (K) System (S)

Degree of motivation

The degree of motivation for an individual is a result of the interaction between intrinsic and extrinsic variables and real and perceived barriers. Organizational members are motivated to interact with or avoid knowledge sharing and knowledge management systems for a number of reasons, especially concerning issues of power, trust, social relationships, organizational role, access, time, risks versus rewards and education, as well as barriers created by the technology itself.

Paul (2006), in his study of telemedicine communities, found that the ability to create and share tacit knowledge depended on several factors, including perceived power, degree of trust, individual levels of socialization and context. He concluded that social contexts not only had an impact on, but could also develop in virtual environments; however, he also found that building trust in mediated conditions was difficult (Paul, 2006). Pretorious and Steyn (2005) echoed this conclusion, maintaining that people need physical contact in order to build trust, and trust is necessary to transfer tacit knowledge. They also noted that the fewer members of a group, how long group members had worked together, and close physical proximity, rather than computer mediation, positively impacted knowledge sharing.

In her study of virtual experiential learning communities at the University of Twente in The Netherlands, Collins (2001) found that one of the beneficial features of their KM system was its universal access by organizational members in various roles. Downing (2004) in his analysis of customer service call center technicians' adoption of KM tools, looked beyond the traditional knowledge worker—educated and skilled, to less educated, relatively unskilled workers who also utilize KM systems to accomplish their job to see if they could engage in knowledge sharing and learning. He found that much of resistance to adopting the technology could be traced to the IT system itself—level of available support, difficulty in learning and operating the system, reliability and the amount of time it took to accomplish the knowledge tasks all impacted whether or not the technicians embraced the technology.

King (2006) in his study of the KM system in a United States Federal Agency that maintains part of the communication system for the Department of Defense also found that several factors determined whether or not users were motivated to use the “discretionary database” as a learning tool. Like Downing (2004), King found that user motivation played an integral in how much they used the technology, but he found that intrinsic motivation was key; whereas, Downing found more impact in extrinsic motivation. King concluded that users could develop a sense

of trust, even through the mediated communication, but noted that the individual's perceived benefit versus the perceived cost—in terms of letting go of power/knowledge and time—of knowledge sharing were the main determinants of participation. King also found that the KM system did foster organizational learning because users did not know who might use their shared knowledge, which forced them to shift from a traditional individualistic view to an organizational view of how knowledge sharing benefits the entire system.

Learning Styles

Plass and Salisbury (2001) found in their study of a knowledge management system employed by the United States Department of Energy and its affiliates, that tacit knowledge could be codified, retrieved, and applied—and even synthesized, recoded and embedded in the system for use by others. They introduced the *Collaborative Cognition Model* that “describes how learning can take place with one individual, be captured and transferred to another individual in an organizational setting” (p. 453). The Collaborative Cognition Model built upon Nonaka and Takeuchi's 1995 concept of creating a knowledge spiral in an organization that begins with individual members converting tacit knowledge into explicit knowledge that can be shared with other organizational members who can synthesize the summed knowledge to create new knowledge applicable to their problem or situation. The Collaborative Cognition Model built upon this process by categorizing the knowledge involved so it could be captured and managed in a “living” knowledge communication system where an organizational member could determine what type of information they needed to retrieve, synthesize and utilize that data to generate new knowledge, which they could then recode and submit back to the system for others to use. “The member constructed his or her own tacit knowledge based on the different types of knowledge made available by the system” (Plass & Salisbury, 2001, p. 461).

The MIKS Models builds upon this Collaborative Cognition Model by connecting the aspect of individual learning styles to Plass and Salisbury's (2001) integrated processes of knowledge transfer, new knowledge creation, addition of new knowledge, application and dissemination. For HRD professionals, this consideration of individual learning styles should provoke the implementation of needs assessments to identify organizational members' degree of ability to engage in critically reflective practice. If a need is identified, training, coaching, mentoring or other programs that address individual development of reflective practice may spur the organization toward ongoing generative learning practices.

Individual reflective process is crucial to the success of the learning organization. Double-loop learning involves critical reflection upon information and questioning of the underlying norms of the organization as they interact in the member's generation of new knowledge (Argyris & Schön, 1978; 1996) In the learning organization, this process results in changes to organizational culture that reflect the collective results of the individual members' progressive development and integration of new knowledge. The MIKS Model demonstrates this double-loop learning process. As the individual member digests information from the KM system, reflects upon that information by relating it to their own tacit and explicit knowledge, generates new knowledge, and returns that explicit knowledge to the system, the organizational culture is central to the process. The existing culture offers a basis for interpretation, but through the reflective process of double-loop learning, new knowledge is embedded in the organizational culture.

The learning organization calls for individuals to continuously learn how to learn in a collective capacity. The MIKS Model demonstrates how technological mediation can be used as a tool in developing this system of dynamic knowledge creation. In her study of virtual experiential learning communities at the University of Twente in The Netherlands, Collins (2001) found that utilizing information technology systems to share classroom experiences of students and faculty produced courses that were adaptable, evolving, and dynamic. Users interpreted their own experiences, sought out information from others, and synthesized this knowledge to generate new learning that they then shared by adding it to the system. As to the role of KM in the process, she summarized, “Without the technology, standardized throughout the organization and built around the building on contributions and exposure to ideas, we would be very much handicapped in moving forward” (Collins, 2001, p. 316).

Communication Processes

Several relevant aspects of communication theory must be addressed in terms of individual engagement in a mediated exchange. According to Monberg (2005), as the technology advances, communication theory related to mediated communication needs to adapt to the new interactive human roles emerging as a result. He points to flaws in simple transmission models, especially their exclusion of the elements of power and culture, which are of central concern to learning organizations. Though transmission models may not be sufficient to address mediated communication, elements of these models are significant in terms of individual engagement with a knowledge management system. Processes of encoding and decoding information, the filters and lenses through which those processes take place, and the conflicting elements of noise, all impact the individual's success with a mediated communication exchange.

The process of encoding and decoding information generates a system of representation of knowledge, and that system— “can also be said to have knowledge, namely the knowledge embodied in that representation about that thing” (Holsapple, Johnson & Waldron, 1996, p. 425). The knowledge management system possesses the data, information, procedures, etc. as a representation of the actual event, object, person, etc., as it was encoded by the organizational member(s). Other members of the organization in retrieving that representation, decode it; thus creating their own unique representation. Holsapple, Johnson & Waldron (1996), concluded that “knowledge, including communication knowledge, is embodied in usable representations” (p. 425). In the decoding process, information passes through the individual’s unique perspective. Some impacting elements of perspective may include: past experiences, prior knowledge acquired, emotional filters, assumptions about organizational culture, current needs, desired outcomes, timing of the reception of information, communication capabilities, and language skills. In this process, the representation may remain virtually intact—the receiver understands the input relatively close to how the original submitter, or encoder, intended it to be understood. That is a process of knowledge acquisition. On the other hand, the representation may be decoded in a new way or utilized from a different perspective than intended by the original encoder. This process of new knowledge generation is key to the ongoing learning processes of the learning organization (Watkins & Marsick, 1999).

Earlier discussion of Downing (2004) and King’s (2006) studies supported that factors residing within the organizational member, such as organizational role, education level, degree or trust and motivation are key determinants to the success of a knowledge sharing and knowledge generating system. The addition of communication processes to the MIKS model includes these elements as part of the individual’s communication processes—the perspective aspect, but also points to their integral role in the encoding and decoding processes relevant to the innate ability to share information or knowledge with others. Another aspect of transmission models of communication, noise, is also brought in. Internal and external noise, especially from situational factors integral to the technology itself, such as availability of technical support, reliability of the system, amount of time it takes to engage in the knowledge sharing and generating process, the difficulty level in using the system, information overload, and the degree of access individual’s may possess, can also influence how the member reacts to the process (Chan & Garrick, 2003; Collins, 2001; Paul, 2006; Plass & Salisbury, 2001).

Summary and Directions for Future Research

The study of knowledge management goes beyond the consideration of information technology to include the implications of knowledge sharing and communication, and the impact of individual perceptions, organizational culture, and both internal and external contexts on the knowledge management process. The MIKS Model attempts to integrate the people and technology elements of knowledge management in an effort to show KM’s usefulness as a tool for the learning organization.

A challenge for future research lies in finding existing learning organizations that employ KM technology to generate new knowledge in an effort to build a culture of collective wisdom that encourages involvement as a learning organization. Considering the perceptions, experiences, attitudes, knowledge and behaviors of these organizational members, as well as looking at what IT systems are utilized, how they are developed, and how they are managed, may bring new insight to the MIKS Model. Some of the reviewed case studies mentioned the type of IT system utilized, but since this literature was not addressed to an IT audience, technological details were not included.

Plass and Salisbury (2001) and Chan and Garrick (2003) brought forth other issues of interest for the MIKS Model including the impact of external contextual influences, information overload and the ethical issues surrounding the “exploitation of an individual’s tacit knowledge” (Chan & Garrick, 2003, p. 295). Other social justice concerns regarding the knowledge divide and the concept of human knowledge as organizational capital are also important concerns in future research.

Additionally, while the MIKS Model begins to differentiate the cognitive and behavioral processes behind knowledge and knowing (Easterby-Smith, 2005), more study needs to be done on the ability of individuals to convert tacit knowledge to explicit knowledge and transfer this along mediated channels.

The MIKS Model offers a starting point for future research on the synthesis of the guiding roles of people and technology in the use of knowledge management systems to develop learning organizations. It also offers HRD practitioners are focal point for developing training programs to increase participation and enhance the human performance capabilities in organizations where knowledge management systems are introduced as a tool for sharing and learning.

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